DEPARTMENT OF HEALTH & HUMAN SERVICES Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30333

TB Notes
No. 1, 2005

Dear Colleague:

The National TB Controllers Association is pleased to announce that it has a new Executive Director, Carol Pozsik, RN, MPH, former TB Controller for South Carolina. More information on Carol can be found in the Personnel Notes section of this issue. In international news, on February 1, 2005, Dr. Martien Borgdorff was appointed the new director of the KNCV Tuberculosis Foundation. He succeeds Dr. Jaap Broekmans, who served as the director of the organization for over 17 years. Dr. Borgdorff is an internationally recognized TB expert and epidemiologist who is well known to many in DTBE through our international work. Dr. Borgdorff visited DTBE in Atlanta in 2003 and provided in-depth technical consultation for various genotyping analyses.

The Advisory Council for the Elimination of Tuberculosis (ACET) met on February 16 and 17 in Atlanta. We started off with Center and Division updates and reports, which included staffing and budget updates from Dr. Janet Collins, acting Director for the National Center for HIV, STD, and TB Prevention (NCHSTP). Dr. Collins reported that Congress had provided additional funding for U.S. TB control, which allowed restoration of support to programs that had been cut. She also reminded us that the BOTUSA Project in Botswana has just celebrated its tenth anniversary. On March 1, BOTUSA staff held an anniversary conference in Botswana to commemorate this special event. After these updates, ACET members heard a number of presentations on global TB. Among these were Dr. Ann Ginsberg's encouraging report on the work of the Global Alliance for TB Drug Development; she described several studies of moxifloxacin, which may shorten treatment by 2 months. Dr. Dolly Katz of DTBE gave an update on the TB Epidemiologic Studies Consortium (TBESC) pilot study on TB in foreign-born persons. She concluded from the pilot study results that foreign-born persons will participate in the study, will answer sensitive questions, and can provide programmatically relevant information.

The next day, we heard updates on infection control issues. Dr. Lisa Panlilio described the respiratory protection stakeholders' meeting held in Atlanta on November 30 and December 1, 2004. The meeting was intended as an information-gathering foundation for future activities. Several ACET members expressed concern that the meeting's productivity had been lessened by the divergent positions of two groups, the representatives of respirator manufacturers and the hospital infection control professionals. Dr. Michael Iademarco followed with a status report on the revised infection control guidelines. He and Lauren Lambert and Dr. Paul Jensen are reviewing over 2,000 comments received in response to the *Federal Register* announcement. Based on substantial external input, CDC is near consensus on fit testing and frequency of respirator use for health care workers.

We observed World TB Day with a number of activities. On March 24, DTBE joined the Metropolitan Chicago Tuberculosis Coalition in a World TB Day observance. The theme of the event was “TB: Educate to Eliminate.” Representing DTBE on the program was Dr. Wanda Walton, Chief, Communications, Education, and Behavioral Studies Branch. In connection with World TB Day, the March 18 issue of CDC’s *Morbidity and Mortality Weekly Report (MMWR)* contains three pieces on tuberculosis. These include a front-page box entitled “World TB Day, March 24, 2005” as well as two reports, “Congenital Pulmonary Tuberculosis Associated with Maternal Cerebral Tuberculosis — Florida, 2002, “ and “Trends in Tuberculosis — United States, 2004.” The trends report presents provisional TB case and rate data reported for 2004 and discusses CDC’s efforts in addressing the high TB rates among foreign-born persons and blacks in the United States. As it has for the last 2 years, DTBE’s surveillance team has published these provisional data and trends less than 3 months after the end of the reporting period. Other World TB Day activities included producing and distributing updated materials for use in local efforts, including a variety of World TB Day posters, a brochure, and several fact sheets. DTBE has added a 2005 World TB Day section to its website, www.cdc.gov/nchstp/tb/WorldTBDay/2005/default.htm. In addition, the CDC website home page and the CDC en Espanol home page are featuring a World TB Day "Spotlight" during the weeks of March 14 and 21. Finally, DTBE and the National Prevention Information Network (NPIN) created a 2005 World TB Day section on the NPIN webpage containing information about World TB Day and various TB-related materials (please see www.cdcnpin.org/scripts/spotlight/spot_wtd05.asp).

If you have not already done so, please mark your calendars for this year’s National TB Controllers Workshop. It is being held in Atlanta on June 28-30, 2005, at the J.W. Marriott Lenox Hotel. The Workshop will be preceded by related sessions on Sunday and Monday, June 26 and 27. The theme is *“Can You Hear Me Now? Let’s Talk TB,”* and will focus on communication, education, training, and media relations. I hope to see you there!

Kenneth G. Castro, MD

In This Issue

Note: The use of trade names in this issue is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

HIGHLIGHTS FROM STATE AND LOCAL PROGRAMS

Immediate Cost Impact of Extended Treatment for Patients at High Risk for Relapse of TB in North Carolina

Short-course (6 month) treatment regimens, where indicated, are preferred and are highly effective for cure of TB. However, within the population of patients for whom a short-course regimen is indicated, there are those patients who have risk factors for treatment failure or relapse. The latest TB treatment guidelines include a recommendation to prolong the treatment for patients at high risk of treatment failure or relapse. These recommendations were based in part on US Public Health Service Study 22 of the TB Trials Consortium. Study 22 suggested that patients who had cavitation on initial chest radiograph, plus positive sputum culture after 8 weeks of treatment, were at higher risk for treatment failure and relapse. Pursuant to that observation, the current recommendation is to extend treatment from 6 to 9 months for patients who have these two risk factors. We evaluated past TB cases in North Carolina to determine how many would have met the new criteria for extended therapy and their length of treatment, and estimated the immediate cost of extending treatment for these patients.

Methods: The cohort included reported cases of TB from 1993 to 2002, inclusive. Patients who had positive sputum cultures and who had a documented culture conversion were included (n=2173). We limited our cost considerations to the cost of medication for the added length of the regimen and the time factor for a public health worker to perform biweekly directly observed therapy (DOT) using isoniazid (INH) at $2.80/month and rifampin (RIF) at $14.58/month. For personnel costs, we determined that $30,000 was an approximate average annual salary for those providing DOT in North Carolina, resulting in a computed hourly rate of $15.63. We estimated 3 hours per patient to perform DOT (1 hour to travel each direction to visit the patient and 1 hour to give DOT and complete records). Based on those two factors, we estimated the cost at $392.50 for 1 month of treatment for one additional TB patient to receive the extended regimen. We assumed that TB patients with risk factors for treatment failure and relapse were evenly distributed for each year.

Results: Of the 2,173 patients who had documented culture conversion, 469 met the high-risk definition (21.6%) of having a cavitary lung lesion on chest radiograph plus delayed sputum conversion; only 119 (25.4%) received 9 months or more of treatment. Of the remaining 350 patients, 104 received 6 months of therapy (22.2%) and 246 (52.5%) received between 6 and 9 months of therapy. Thus, 6 hrs/wk of DOT for 12 additional weeks per patient, plus the cost of additional INH and RIF, amounts to $1,177.50/patient. Assuming 35 patients per year would need 3 months' additional treatment to comply with the new TB treatment guidelines, North Carolina TB Program costs are expected to increase approximately $41,212.50/year.

Discussion: The cost to treat patients who have active TB is generally borne

by the public health system. In North Carolina, the cost of medication for TB patients is funded by general revenue funds allocated by the state legislature. Hence, the rise in costs for treating this subset of TB patients presents a significant challenge to the North Carolina TB Program when viewed along with budget cuts in three major categories of state funding. Funding for TB medication has been reduced three times within the past 4 years. General revenue funds for TB aid to counties have been reduced, and funding for TB medical services for the counties has also been reduced. Like many other states, North Carolina is a “home rule” state (home rule is a delegation of specific types of power from the state to its subunits of government, including counties, municipalities, towns or townships, or villages). Therefore, responsibility for TB control rests with the county or regional health district. The North Carolina TB Program works with these jurisdictions, providing limited funding and program guidance, to achieve state and national TB program objectives. The cost of extending treatment for those having risk factors for relapse is an issue with which public health officials have to contend, but it is balanced by the costs incurred when a patient relapses, resulting in an additional 6 full months of therapy. TB Controllers will need to provide the educational leadership to help their state public health officials understand the longer-term benefits that we hope will accrue with this approach.

As to the limitations of this study, for those patients receiving 6 to 9 months of therapy, we do not have a way of knowing exactly how many doses they received.

Conclusion: Proactive intensification of TB treatment for high-risk individuals will result in additional program costs. A more formalized cost-benefit analysis is planned to consider the costs of re-treatment, including contact investigations and possible secondary cases, to better delineate the public health benefit of the new treatment recommendations.

—Submitted by Carol D. Hamilton, MD, Jimmy Keller, MA, Ashley Ewing, BS,, Dee Foster, RN, Elizabeth Zeringue, RN,, Myra Allen, RN, and Julie Luffman, RN, North Carolina TB Program

New and Old Ideas Blend Well at Harbor Light Shelter

In spring 2003, the St. Louis City Health Department TB control program noted an increase in TB cases among the city’s homeless, with a possible link to a shelter called Harbor Light. Owned and managed by the Salvation Army, Harbor Light is the city’s largest homeless shelter. The state and city TB staff had been noting this trend through program assessments and case reviews. The city’s TB nurse case manager requested a thorough investigation by the state health department, which was completed on April 29, 2003. The goal of the investigation was to confirm or rule out Harbor Light as a significant site of transmission and to develop new strategies for curbing this outbreak.

The investigation revealed that since February 2001, 16 homeless persons with active TB had been diagnosed and epidemiologically linked to stays at Harbor Light. Fourteen had AFB-positive smears at time of diagnosis; two were HIV infected. Two died, one shortly after diagnosis and one while hospitalized at the Missouri Rehabilitation Center

(Missouri's inpatient TB facility). Isolates were available for 13, allowing for confirmation of epidemiological links (identified by chart review and shelter log records) through genotyping.

From analysis, two distinct outbreaks emerged. In the first, four patients had epidemiological links to each other and to the shelter and also had the same genotype pattern. These cases were diagnosed between June 2001 and January 2002. In the second, nine others were linked, having another distinct and matching genotype pattern, and became the focus of the investigation. The first two cases in this group were diagnosed in July 2001. One of these case patients was found critically ill at the shelter and died shortly after hospitalization. Both were deemed to have been highly infectious while staying at the shelter between April and July 2001. Eight cases were linked back to this exposure. Four out of five shelter workers also converted their skin tests at this time. Two cases did not have culture isolates available, but were also epidemiologically linked to this second group. A second critical exposure period existed between January and March 2003, when the second patient who died had stayed in the shelter, and two additional infectious cases were diagnosed.

Eleven of these surviving patients were completely treated. One reactivated and was treated twice; two were lost to follow-up. Compared with the other TB patients in Missouri, patients in this outbreak were four times more likely to be HIV infected, eight times more likely to abuse alcohol, nine times more likely to use noninjected drugs, and 25 times more likely to inject drugs.

The outbreak persisted and reached 19 cases by August 2003, despite the city health department staff's excellent efforts in contact follow-up, targeted testing, and symptom reviews. With the prospect of another cold Missouri winter and the likelihood that homeless persons would crowd this large shelter for another season, several unconventional recommendations were considered. Many of these included primary prevention activities, such as environmental controls at the shelter, to reduce the incidence of TB transmission at this high-risk congregate setting. The following discussion will explain what was done and why.

Managing TB in Homeless Shelters in the St. Louis Area

During May through June 2003, 250 clients, staff, and frequent visitors (e.g., ministers) were given a TB skin test at the Harbor Light shelter in response to two cases and a death that were reported during the previous 2 months. A few positive skin tests were reported and evaluated, but no active TB cases were identified.

In August 2003, the City of St. Louis Health Department TB control program began to use a homeless shelter client tracking system called ROSIE (Regional Online Service Information Exchange). This tracking system keeps a current record of all movement of homeless clients throughout the city's shelter network. The value of this system is that it allows the TB Control Program to identify contacts who may have moved from one city shelter to another and be able to find, evaluate, and provide treatment as necessary. Access to this system resulted in identifying six homeless contacts from previous cases.

In September 2003, a TB outbreak containment meeting was held at the Harbor Light Shelter and was attended by representatives of the City of St. Louis Health Department TB Control Program; CDC's DTBE, including Dr. Paul Jensen, who has extensive engineering experience working in shelters and prisons in countries such as Russia and South Africa; CDC's National Institute for Occupational Safety and Health (NIOSH); the Missouri State Department of Health and Senior Services (DHSS); the Salvation Army shelter management staff; and the Salvation Army's new facilities management company, Lenzy Hayes. As a result of that meeting, a strategy was developed to conduct a comprehensive evaluation of the entire heating, air conditioning, and ventilation (HVAC) system in the shelter. Their recommendations included cleaning and retrofitting all 23 air handlers, upgrading the filters inside the air handlers to higher-rated, less porous filters, and installing TB-killing ultraviolet germicidal irradiation (UVGI) lights as funds were available.

In October 2003, funds were secured to conduct mobile, on-site radiographs at the Harbor Light Shelter. This provided a baseline evaluation of 250 clients, staff, and frequent visitors prior to the implementation of the suggested engineering improvements. There was a potential concern regarding how to proceed if large numbers of clients were found with abnormal radiograph results. To address this concern, in October the Florida Department of Health Laboratory in Jacksonville agreed to a memorandum of understanding (MOU) with the Missouri Department of Health and Senior Services and the City of St. Louis Health Department TB Control Program to provide the rapid, 1-day nucleic acid amplification (NAA) Mycobacteria Tuberculin Direct (MTD) Test for any homeless clients. Eight clients were found to have abnormal radiographs and referred to the TB control program for further evaluation. All eight were determined to be negative for TB disease. Abnormal results varied from old, healed gunshot wounds to a referral for possible carcinoma.

On November 26, 2003, the state health department issued a Public Health Advisory. The Advisory alerted the St. Louis–area medical community to the outbreak, and recommended that providers 1) "think TB" for homeless shelter users and workers with respiratory illness, 2) screen for TB disease risk factors and symptoms in area emergency departments, 3) send all sputum specimens to the state TB lab, and 4) report all TB suspects within 24 hours. The state health department issued an epi-X report shortly following the advisory, in an effort to alert neighboring states. (Epi-X, or the Epidemic Information Exchange, is a secure, moderated means of communication between public health officials for reporting and discussing outbreaks and other acute health events.)

During November-December 2003, the Salvation Army paid to have the 23 air handlers, including two roof units, completely cleaned, scrubbed, and retrofitted. This investment by the Salvation Army division headquarters resulted in thorough air quality improvement (versus a band-aid measure). The visiting nurses who see clients a few hours a day reported seeing a significant reduction in complaints for respiratory ailments (such

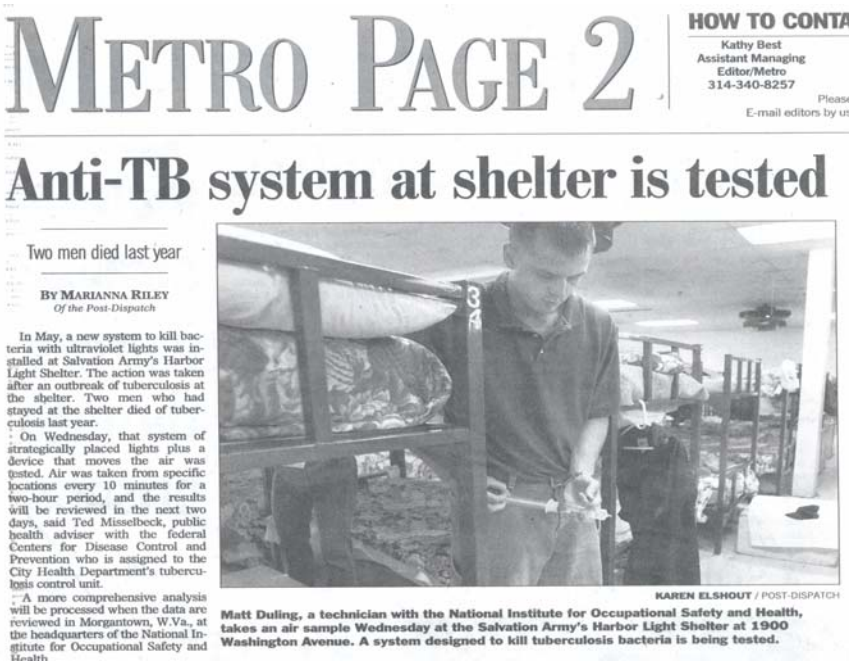
as coughs, colds, and allergies). During this 2-month period of time, the air filters were replaced with higher-rated air filters a couple of times to capture residual particles from the cleaning effort.

In April 2004, funds in the amount of $25,000 were secured through the State of Missouri Department of Health and Senior Services to purchase TB-killing ultraviolet lights. Lumalier Incorporated, located in Memphis, Tennessee, was awarded the contract. Mr. Charley Dunn, Chairman, has worked on a number of shelter and jail projects and as a consultant with CDC on projects throughout the United States, Eastern Europe, Africa, and South America. A number of UVGI lights were purchased based upon the evaluation of Dr. Paul Jensen (CDC/DTBE), Drs. Chris Coffey and Steve Martin (CDC/NIOSH), and Mr. Charley Dunn. This type of UVGI lighting was designed to provide the best type of application based on the size of the room, the amount of airflow, and the client capacity.

In July 2004, a nine-member engineering team from CDC/NIOSH conducted a week-long tracer gas study in the Harbor Light Shelter Annex unit (the area where all TB cases were identified) in order to determine the air flow patterns and the volume of air circulated and to measure for static air locations. This is important in that some homeless clients are permitted to remain in the shelter sleeping quarters during the day because of illness or injury.

In July 2004, a second phase of UVGI light installation ($10,000) was completed. Mr. Charley Dunn of Lumalier Incorporated designed a new type of air circulation/UVGI light combination called a “Silent Air Mover” (referred to as SAM). This new light helps to continually circulate the air throughout the room (remains on 24 hours a day) and into the attached UVGI TB-killing chamber.

A member of the NIOSH team takes an air sample in Harbor Light shelter (from the St. Louis *Post-Dispatch*, July 15, 2004).



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HOW TO CONTA

Kathy Best
Assistant Managing Editor/Metro
314-340-8257

Please E-mail editors by us

Anti-TB system at shelter is tested

Two men died last year

BY MARIANNA RILEY
Of the Post-Dispatch

In May, a new system to kill bacteria with ultraviolet lights was installed at Salvation Army's Harbor Light Shelter. The action was taken after an outbreak of tuberculosis at the shelter. Two men who had stayed at the shelter died of tuberculosis last year.

On Wednesday, that system of strategically placed lights plus a device that moves the air was tested. Air was taken from specific locations every 10 minutes for a two-hour period, and the results will be reviewed in the next two days, said Ted Misselbeck, public health adviser with the federal Centers for Disease Control and Prevention who is assigned to the City Health Department's tuberculosis control unit.

A more comprehensive analysis will be processed when the data are reviewed in Morgantown, W.Va., at the headquarters of the National Institute for Occupational Safety and Health

KAREN ELSHOUT / POST-DISPATCH

Matt Duling, a technician with the National Institute for Occupational Safety and Health, takes an air sample Wednesday at the Salvation Army's Harbor Light Shelter at 1900 Washington Avenue. A system designed to kill tuberculosis bacteria is being tested.

In October 2004, another team from NIOSH returned to conduct a tracer gas study in the Harbor Light Shelter main building. This is where clients enrolled in long-term drug or work programs reside and is also where the staff offices as well as the dining and meeting rooms are located.

Photo shows SAM units in bunk area.

Other intervention measures
The installation of large, unusual lighting devices and of large tanks releasing tracer gas, along with the other uncommon activities being conducted in the shelter, were deemed potentially intimidating to the residents, and we felt that the perceptions of the residents and staff needed to be considered. Ongoing in-service meetings were scheduled with clients to reassure them that the "strangers" in their facility were there to improve the air quality and make it safer. Educational TB literature, handouts, and posters were provided and time was allotted for questions and answers. The fact that staff and residents noted the improved air quality in their shelter helped foster a positive reception.

Lessons learned
Several key lessons were learned during the last year and a half of this project.

- Persevere; it is important to keep sight of the goals of the project strategy despite obstacles. Throughout this project there were a number of delays. Some were expected, such as scheduling members of the team so they could be at the shelter at the same time. Other obstacles were more difficult to overcome. Obtaining funding for the UVGI lights and getting approval through the various levels of government and shelter management was time consuming, but worth the effort.
- Provide education and outreach. The shelter working conditions during the project were made easy in part by the ongoing information sessions held with clients and staff. Once they realized that different people would be coming into their facility to make improvements, everyone was helpful.
- "Toot your own horn." Members of the press, the television and radio stations, and the St. Louis Science Center were invited to two different media events held at the shelter. The TB Program, CDC, the State of Missouri Health Department, and the Salvation Army all received positive press (St. Louis *Post-Dispatch*) and TV and radio network coverage (Fox, CBS, NBC, and Media Network Radio). We coordinated the

events through the St. Louis City Health Department and Salvation Army public relations offices. The media will come if there is news.

- Promote communication and teamwork. Keeping all parties informed of even small accomplishments or obstacles helped to forge a team atmosphere among the 11 different agencies and vendors. By doing this, everyone came on-site more prepared and were able to order, manufacture, or bring with them needed supplies or equipment.

Summary

There have been no TB cases reported from the shelters since August 2003. As we proceeded with installation of the engineering improvements throughout the winter and spring, we remained focused on identifying any other measures that we could implement. Although some of the homeless clients only stay at the shelter for a few days, on any given day a client with active TB could enter the shelter and put the resident population at risk. Engineering improvements are one part of the overall TB prevention strategy; TB education is another important ongoing prevention element. Staff and visiting nurses are provided with signs-and-symptoms checklists, and posters are placed in sleeping quarters and shower hallways.

The feasibility of implementing some or all of the TB strategy of this project within other homeless shelter networks in other parts of the nation is greatly dependent upon the size of the shelters, commitment of the participating shelter management, and availability and negotiation posture of the parties involved. Above all, remaining persistent and forging sincere partnerships were the keys to the success of this project.

—Submitted by Ted Misselbeck
PHA, City of St. Louis Health Department
and Lynelle Phillips, RN, MPH
PHA, MO Department of Health and Senior Services

2004 Northeast TB Controllers' Conference

The 2004 Northeast TB Controllers' Conference was hosted by the Rhode Island TB Program. Members of the Northeast TB Training Consortium, including the Massachusetts Division of TB Prevention and Control and the New Jersey Medical School National Tuberculosis Center, played active roles in planning and sponsoring the conference. The conference was held on October 18-19, 2004, at the Hyatt Regency Hotel in Newport, RI. There were over 120 participants consisting of TB control officers, nurses, physicians, managers, epidemiologists, laboratorians, and public health professionals from states in the Northeast TB region, as well as from Florida, Georgia, and Hawaii. The conference addressed many identified needs and interests of TB programs such as advocacy, regional approaches to TB control, clinical case presentations, outbreak investigations, and partnerships with TB laboratories. The University of Medicine and Dentistry of New Jersey Center for Continuing and Outreach Education granted approval for the following types of continuing education credits: continuing medical education credits (CME), continuing education units (CEU), and nursing contact hours.

A separate meeting for TB controllers addressed advocacy in state government, strategies for achieving state initiatives in the face of changes in funding, a report on training and education needs in the Northeast, and a discussion on the purpose and format of the annual meeting.

The 2005 Northeast TB Controllers' Meeting will be hosted by the New York State TB Control Program.

—Reported by Anita Khilall, BS, and DJ Mccabe, RN, MSN
NJMS National Tuberculosis Center
Education and Training Department

TB Patient Management Application Assessment Guide and Decision Tool

Background
The Tuberculosis Information Management System (TIMS) is an electronic system that was designed and developed by CDC to help TB control programs better manage their TB data. However, the patient management module of TIMS was never fully developed, and thus was useful to some TB programs but inadequate for others. TIMS is now being phased out, to be replaced for the most part by the National Electronic Disease Surveillance System (NEDSS), yet state and local programs still need a patient management component. The Patient Management Project was started to address this need.

The TB Patient Management project started with three overarching objectives:

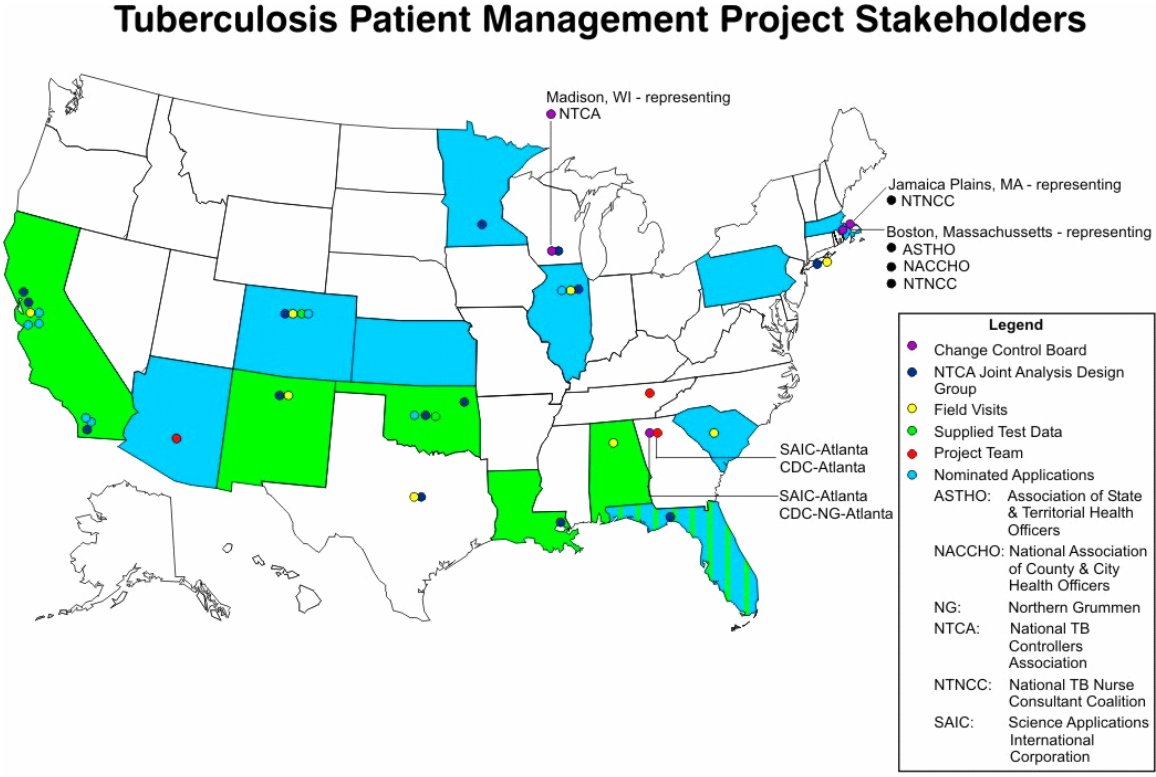
1. Identify core TB patient management practices and program evaluation activities across programs and document the functional requirements they represent,
2. Use this information to develop criteria to assess and evaluate existing information system options, and
3. Provide local and state TB control programs a means to use the results of the project.

The challenges CDC and TB controllers encountered with TIMS validated and reflected the difficulties for any federal agency to develop an electronic "one-size-fits-all" TB patient management system. Thus the TB Patient Management project was designed to evaluate existing electronic patient management systems, not to develop software.

The outcome of this project has been the development of a Web-based assessment guide. The primary purpose of this guide is to assist local and state TB control programs as they seek to select an application that best fits local TB control practices. The first section of the guide contains background material on many of the aspects of information technology selection and procurement with TB-specific examples. It includes a step-by-step guide to assist organizations as they navigate the process of an evaluation process. Section 2 consists of a tool that can be used to objectively evaluate information systems using the criteria developed by the project or with local modifications. The results of the evaluation conducted earlier this year are available in section 3. These results represent evaluation outcomes as of May 2004.

The guide, available at http://infotechnet.org/ntca/, is supported by the National Tuberculosis Controllers Association and the Turning Point Program. We are very fortunate to be able to partner with the Turning Point Program to host this site and project information/tools. The Turning Point Program, started in 1997, is an initiative of The Robert Wood Johnson Foundation and the W.K. Kellogg Foundation. Its mission is to transform and strengthen the public health system in the United States by making it more community-based and collaborative. The Turning Point Program partners have created five National Excellence Collaborative projects, one of which focuses on information technology. The mission of the information technology collaborative is to assess, evaluate, and recommend to national policymakers innovative ways to improve the nation's public health infrastructure by using information technology to effectively collect, analyze, and disseminate information.

The project could not have succeeded without the dedicated effort of many stakeholders and representatives from local and state health departments. We also acknowledge the contributions of the TB Patient Management Project staff, including Carol Berglund, Sandy Price, and Cathy Rawls of DTBE and Amy Bakeletz, Teresa Petit Smith, Garth Casdorph, Stephan Lacasse, and Jackalie Blue of Science Applications International Corporation (SAIC).



The products of this project have been developed to support state and local TB control programs. However, we hope these tools will support similar electronic application assessment needs of local and state public health department staff who are trying to identify IT solutions that address multiple public health issues.

—Reported by Subroto Banerji, MPH
Div of TB Elimination
and Jackalie Blue, SAIC

Errors Involving Mix-Up of Tuberculin Purified Protein Derivative and Vaccine Products

The Food and Drug Administration (FDA) and CDC have identified mix-up

errors between tuberculin purified protein derivative (PPD) and vaccine products reported to the FDA MedWatch Program[1] and the Vaccine Adverse Event Reporting System (VAERS).[2] As of September 2004, a preliminary review had identified 89 PPD/vaccine errors involving 210 adult and pediatric patients since 1990. Of these error events, 81 involved inadvertent administration of vaccine instead of tuberculin PPD, and 8 involved inadvertent administration of tuberculin PPD instead of vaccine; 67 were single case events and 22 were clusters (inadvertent administration of vaccines or tuberculin PPD products to more than one patient in the same health care facility during a 1-month period). Clusters have occurred in correctional facilities, schools and universities, public health departments, social service agencies, and occupational settings.

Vaccines commonly involved in mix-ups with the tuberculin PPD products included tetanus diphtheria toxoids, tetanus toxoid, pneumococcal polysaccharide, inactivated influenza, and hepatitis B vaccines. Most of the reported adverse events were local injection site reactions; however, three patients required hospitalization owing to systemic reactions such as “serum sickness–like illness” and asthma, although a causal relationship between the mix-up and these adverse events is not clear. All three patients recovered. In some error events, several patients were started on isoniazid (INH) because of false-positive TST results. All TST results were negative when patients were retested, and INH was discontinued without any reports of adverse reactions to the medication.

Factors most commonly reported as potentially contributory to these mix-up errors included similarities in packaging (only between tetanus and diphtheria toxoids for adult use, Aventis Pasteur Inc, Swiftwater, PA, USA and Tubersol®, Aventis Pasteur Ltd, Toronto, Ontario, Canada), similar product name abbreviations (i.e., pneumococcal vaccine PPV and tuberculin PPD), pharmacy and manufacturer dispensing the wrong products, storage of vaccine and PPD products side by side in the refrigerator, use of syringe containing wrong product during simultaneous administration of vaccine and PPD products, and failure to verify the right product by two TST administrators.

Mix-up errors involving vaccines and tuberculin PPD products and measures to prevent these have been previously reported in the medical literature and health newsletters.[3,4,5,6,7,8,9,10] Nonetheless, continuing reports of such errors indicate that further attention to this issue is needed to reduce the problem. Increasing awareness among health care practitioners about vaccine and PPD product confusion and providing education and training regarding TST administration may minimize or prevent these mix-up errors.

Health care practitioners should carefully read labels and record product name and lot number before each TST administration. In addition, health care facilities should consider physical separation and product differentiation between tuberculin PPD and vaccines (e.g., PPD and vaccines can be stored in different refrigerators if feasible). FDA has issued a final rule that requires bar code labels for human and drug products and biological products,

addressing medication errors associated with drugs and biologics.[11] For health care facilities that possess bar code scanning technology, such scanning could help prevent errors made during pharmacy dispensing of products or during vaccine or PPD administration.

FDA and CDC are requesting reports of vaccine-PPD mix-ups, even when not resulting in an adverse event to the recipient. Reporters are encouraged to provide information about associated adverse events, potential contributory factors, and suggestions to prevent such errors. Inadvertent administration of vaccine or PPD products may be reported to VAERS, http://www.vaers.org or telephone 800-822-7967 (following vaccine administration) and FDA MedWatch Program http://www.fda.gov/medwatch or telephone 1-800-FDA-1088 (following PPD administration).

—By Soju Chang, MD, MPH, Kathryn O'Connell, MD, PhD, Jacquelyn Polder, BSN, MPH, M. Miles Braun, MD, MPH, Robert Ball, MD, MPH, ScM, Division of Epidemiology, Office of Biostatistics and Epidemiology, Center for Biologics Evaluation and Research, Food and Drug Administration

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TB EDUCATION AND TRAINING NETWORK UPDATES

Member Highlight

Gail Denkins, RN, BS, is a Regional TB Nurse Consultant for the American Lung Association and the Michigan Department of Community Health. She received her BS degree in Nursing Science and Management of Healthcare Organizations. Gail heard about TB ETN from Teri Dyke, RN, BS, CIC (who is also a TB ETN member) and decided to join because it was a terrific opportunity to learn, share, and network, as well as to assist in the cause of combating TB. "I know well the benefits of colleagues coming together to uplift each other with knowledge, skill, and support," Gail said. She is also a member of the TB ETN conference planning subcommittee. Gail says she joined this committee because it is satisfying and rewarding to work towards putting together a meaningful and valuable conference from which professionals can return to their respective roles armed with new knowledge, partnerships, and inspiration! "I have assisted with other conferences in the past and feel I can be of service," she said.

Gail's job responsibilities consist of providing education and consulting expertise to assist health professionals in the control of tuberculosis. These activities include certification of professionals in skin testing and assisting communicable disease personnel in TB disease management. She also assists in prevention, conference-planning, and case management activities.

One of Gail's projects was the development of an educational program, called "Lunch for a Bunch," for employers and employees of a local company. The purpose of the program was to bring together employees or their family members with diabetes to share lunch and learning programs, while at the same time creating support networks at the workplace. This particular employer had employees with high numbers of sick days related to diabetes. The plan was to track the anticipated reduction of sick days after the lunch hour education programs had provided basic and necessary information to control this chronic disease. It proved to be a win-win situation. Gail enjoyed working with the diabetes prevention and control project through CDC and the Chronic Disease Division at the Michigan Department of Community Health.

Besides Gail's work-related activities, her personal interests revolve around her family: her husband, Greg, to whom she has been married for 36 years; her four grown children; and her seven grandchildren. She also shares her home with Elvis the yellow lab, Jake the beagle, and Marilyn the cat. The family's shared interest is their small log cabin in Indian River, Michigan. There they enjoy hiking, fishing, riding snow mobiles, and creating fine cuisine! "It is glorious to be in the North Woods and see all the beauty around us," Gail relates. Her hobbies include herb and flower gardening, home decorating and sewing, and painting.

Gail is also a member of the American College of Healthcare Executives, from whom she received an Outstanding Mentorship Award from the Indiana Society for Healthcare Education and Training in 1995.

In the future, Gail would like to see TB ETN broaden its scope by enlisting more international colleagues and perhaps developing a mentoring program. "Imagine the broad-based

learning and understanding that could be shared around the world!" explained Gail. In addition, the mentoring program could increase the opportunities for training and education.

If you'd like to join Gail as a member and take advantage of all TB ETN has to offer, please send an e-mail requesting a TB ETN registration form to tbetn@cdc.gov. You can also send a request by fax at (404) 639-8960 or by mail at
TB ETN
CEBSB, Division of TB Elimination
CDC
1600 Clifton Rd., N.E., MS E10
Atlanta, Georgia 30333

If you would like additional information about the TB Education and Training Network, visit the website at http://www.cdc.gov.nchstp/tb/TBETN/default.htm.

—Reported by Regina Bess
Div of TB Elimination

Cultural Competency Subcommittee Update

The TB ETN Cultural Competency Subcommittee has set its agenda for the months ahead. This year the committee is co-chaired by Savitri Tsering of Wisconsin and Margaret Rohter of Illinois.

For the September 2004 - October 2005 year, the TB ETN Cultural Competency Subcommittee plans to

- Craft and launch a new cultural competency needs assessment of the TB ETN membership

  In 2002, the TB ETN Cultural Competency subcommittee conducted a needs assessment of TB ETN members in the area of cultural competency. Because TB ETN membership has doubled, the subcommittee plans to revise and repeat the needs assessment. The subcommittee is currently seeking volunteers from its membership to be part of the work group that will design the new assessment. This needs assessment will be launched during the 2005 TB ETN conference.

- Assist the TB ETN 2005 conference planning committee to ensure that cultural competency presentations continue to be part of the conference agenda

  Based on the August 2004 TB ETN conference evaluations, TB ETN members still want to learn more about cultural competency. Creative ways to integrate cultural competency into the program are being explored.

- Solicit stories from the TB ETN membership to include in the New Jersey Medical School (NJMS) National TB Center cultural competency newsletter

  As a representative of our subcommittee, NJMS National TB Center staff member Lauren Moschetta will request submissions from the TB ETN membership for the newsletter. In addition, submissions that are of interest but not used in the newsletter will be explored as possible options for "local" presentations for the TB ETN conference on the use of cultural

competency in the field to enhance services TB patients receive.

- Review ethnographic profiles developed by a CDC research team on population groups' immigration history, TB related beliefs, and immigrant experience with TB treatment in the United States; provide feedback on the profiles and offer distribution suggestions to the research team

- Continue to review cultural competency tools and add them to the cultural competency resource list, which is available from Heather Joseph (hbj7@cdc.gov)

The committee wants to share the following *Cultural Competency Tip:*

"Culture is a complex matter. Although we often think of it in terms of beliefs and values, it is actually more than that. Culture comprises what we feel; what we learn; what we do; who we spend our time with; memories of and preferences for smells, tastes, sounds, and feelings; images and stories we cherish. It is the resource we all draw on when we problem solve, interpret information, plan for the future, assess ourselves and others, and locate ourselves within time and space."

—Osher D and Mejia B. Overcoming barriers to intercultural relationships. *Reaching Today's Youth* 1999; 3(2):48-49.

—Submitted by Savitri Tsering, MSSW
TB Elimination and Refugee Health Coordinator
Wisconsin Division of Public Health

TB ETN Membership

If you have not yet registered or re-registered for TB ETN membership, now is the perfect time to do it. Membership is free, and new and re-registering members will receive a beautiful TB ETN lapel pin!

Two membership options are available for the TB ETN: *Active* and *Information Only*.

Those who have a lead role in TB education and training within their agencies are encouraged to apply for Active membership. Benefits of Active membership include opportunities to participate in all TBETN activities, including subcommittees and the annual TBETN conference. Active members are entitled to priority registration for all TB ETN meetings, and may also vote on TB ETN business-related issues.

Information Only membership may appeal to those less directly involved in TB education and training, but interested in maintaining and improving their understanding of TB-related issues and practice. Information Only members receive information about TB ETN meetings, activities, etc., via convenient e-mail postings. Subcommittee participation and voting privileges are not extended to this membership, however.

Request a membership registration form by sending an e-mail to tbetn@cdc.gov. Register today!

—Submitted by Linette McElroy
Vancouver Island Health Authority

UPDATES FROM THE CLINICAL AND HEALTH SYSTEMS RESEARCH BRANCH

Why the TB Trials Consortium Needs Your Support

The year is 2024. You are called to the public health clinic to consult on a TB case; its disposition is remarkably speedy and successful. A middle-aged woman and her three children (aged 5 to 12) who recently emigrated from another country are brought in for evaluation. The woman's husband was diagnosed with TB the week before, when he presented to a local hospital with cough, fever, and weight loss. Genetic testing of his sputum confirmed that his illness is caused by drug-susceptible TB. The woman and her children have latent TB infection that was detected by a rapid assay for gamma interferon response performed on a fingerstick sample of blood; they are feeling well and have normal chest radiographs. You place these four family members on the standard regimen for LTBI: 12 weekly doses of a single pill (INH and rifapentine combined) delivered by DOT. You assure the family that they will all be protected from the disease affecting their husband and father. The woman is relieved to learn that she and her children will be able to take such a simple regimen of medicines. Her husband is now at home and has been started on the standard 4-month regimen for drug-susceptible TB: thrice-weekly DOT with three drugs, including a rifamycin and a quinolone.

Sound like an unrealistic fantasy? Perhaps not, and you and your patients may have an opportunity to help make these fantasies come true. Read on.

Consider the advances in TB therapy that have been made in the last 50 years. Standard TB regimens in the 1950s and 1960s consisted of daily therapy with multiple medications, often including injectables, for 18 to 24 months. Clinical trials conducted in the 1960s and 1970s by the British Medical Research Council in collaboration with groups in Africa, India, and Hong Kong established the effectiveness of 6-month "short course" therapy with rifampin-based regimens.[1] Many practitioners in the United States were not willing to adopt the use of regimens that had not been studied in a domestic population and were concerned about the possible toxicity of rifampin. In the early 1970s, public health clinics across the United States enrolled 822 patients in a United States Public Health Service (USPHS) trial comparing three rifampin-based regimens. The results of this trial helped establish 600 mg as the effective dose of rifampin for use in combination chemotherapy and demonstrated acceptably low toxicity of the isoniazid and rifampin combination.[2]

The results of two clinical trials published in 1990 established the basis for our current standard of care for TB in the United States. USPHS Study 21 enrolled over 1400 patients from 22 clinics in 13 states in the 1980s and demonstrated the effectiveness and tolerability of a 6-month INH/RIF regimen (supplemented with PZA for the first 2 months) compared with a 9-month INH/RIF regimen.[3] The other trial of 125 patients studied by the Denver Department of Health demonstrated the effectiveness of the largely intermittent 6-month "Denver short course" delivered by DOT, a regimen used by the majority of U.S. public health clinics today.[4]

During the 1970s, public health and Veterans Administration (VA) clinics across the United States enrolled patients in much greater numbers in

studies of the effectiveness and safety of INH for prophylaxis of TB in PPD-positive individuals.[5,6] The many clinical trials conducted in the United States and abroad provide the evidence to support our current successful approach to the therapy of latent and active TB.

But, as the reader well knows, we have the need for simpler, shorter, safer, and even more successful regimens for all TB patients. Additionally, TB/HIV coinfection and the growing prevalence of MDR TB in some global areas bring new challenges to the treatment and control of TB. How can we arrive at the fantasy described above? New regimens will only result from careful design and conduct of clinical trials. The Tuberculosis Trials Consortium (TBTC) is an investigator-driven consortium funded by CDC since 1995. The purpose of the TBTC is to continue earlier work done by the USPHS and the VA by conducting programmatically relevant research that expands treatment and prevention options for TB control worldwide. CDC and 28 clinical sites across the United States, Canada, and abroad (Uganda, South Africa, Brazil, and Spain) share overall consortium leadership in the conduct of 1) studies to evaluate the safety and efficacy of new TB treatment regimens; 2) pharmacokinetic studies of TB and HIV medication interactions; 3) studies of nucleic acid amplification methodologies in the diagnosis and management of active TB; and 4) studies of treatment for latent TB infection.

You may not know that U.S. TB treatment guidelines have already been informed by the results of TBTC studies. The first two TBTC trials studied intermittent regimens using rifapentine (in HIV-infected and HIV-uninfected patients) and rifabutin in HIV-infected patients. TBTC Study 22 results set the standard and limitations for the use of rifapentine-based regimens for low-risk TB patients and alerted the TB community to rifampin-resistance developing in HIV-infected persons, resulting in rifapentine contraindications in this population.[7] TBTC Study 22 also identified TB patients at high-risk for TB treatment failure or relapse based on the combined finding of cavity on initial chest x-ray and persistently positive sputum cultures after the first 8-weeks of therapy. This led to the new emphasis on the timing of sputum conversion and prolonging therapy in those at highest risk. This should significantly reduce the number of re-treatment cases we all have to deal with.

TBTC Study 23 determined that rifamycin-based intermittent therapy of persons with HIV-TB and low CD4 counts resulted in unacceptable rates of rifampin-resistant TB. These research results shaped the majority of changes made in the 2003 TB treatment guidelines.[8]

Currently the TBTC is enrolling patients into five TB treatment and prevention trials. The U.S. clinical sites comprise public health departments, academic medical centers, and VA Medical Centers. Over the next 4 years, TBTC sites will enroll over 300 patients per year in studies of active TB and over 1500 patients per year in Study 26, a study of treatment for latent TB infection. Study 26 is a trial of treatment of LTBI comparing 3-month once-weekly isoniazid and rifapentine (the short regimen referred to in the 2024 “fantasy” above) vs. standard 9-month isoniazid

therapy. This large study will have a total enrollment of 8,000 high risk PPD-positive patients; over 3,500 have been enrolled to date. History has taught us the powerful impact of clinical trials. TBTC investigators hope you and your clinic will continue or begin to participate in these important opportunities to improve the future of TB treatment.

Many of the clinics participating in TBTC work have found there are also more immediate benefits to participation. Claire Murphy, RN, a former public health nurse and current study coordinator for the Boston TBTC, writes the following about TBTC:

> "(It) enhances patients' involvement through active participation in their own plan of care. Patients who feel they are part of the 'process' actively contribute to laying the groundwork for those future regimens of safe and effective short-course chemotherapies. Ongoing collaboration with the TBTC allows for more opportunities, strategies, and resources to target those 'hard-to-reach' patients. A partnership with your local TBTC site will facilitate optimum completion of therapy rates. To our local public health departments, these high-risk patients who are sought out for treatment are waiting for more improved and tolerable regimens. The question is, 'Are you ready for them?' Come, work with us!"

For further information, contact the Clinical and Health Systems Research Branch, DTBE, National Center for HIV, STD, and TB Prevention, CDC, Mailstop E-10, Atlanta, GA, 30333. Elsa Villarino, MD, MPH, is the Team Leader for the TB Trials Consortium.

Tel: (404) - 639-8123
Fax: (404) - 639-8961
Email: tbtc@cdc.gov
Internet: http://www.cdc.gov/nchstp/tb/

—Reported by Susan M. Ray, MD

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TBTC Studies and Publications

- **Safety and Efficacy Trials**

  Study 22: Efficacy trial of once-weekly isoniazid and rifapentine in the continuation phase of therapy for pulmonary TB (TB Trials Consortium. Lancet 2002; 360: 528-34.)
  Study 23: Single-arm trial evaluating twice-weekly rifabutin for treatment of HIV-associated TB (completed; manuscript submitted)
  Study 24: Efficacy of intermittent therapy for patients with isoniazid -resistant TB or isoniazid intolerance (enrollment completed)
  Study 25: Phase I-II dose escalation study using same design as Study 22, randomizing to 600, 900, or 1200 mg of once-weekly rifapentine (Bock N, et al. Amer J Respir Crit Care Med 2002; 165: 1526-1530)
  Study 27: Phase II study of activity and tolerability of moxifloxacin vs. ethambutol in 1st 8 weeks of TB treatment (enrollment completed March 8, 2005)
  Study 28: Phase II evaluation of moxifloxacin-based, isoniazid-sparing regimen in 1st 8 weeks of TB treatment (anticipated start in April 2005)

- **Pharmacokinetic Studies**

  Study 22 PK: Evaluate isoniazid, rifampin, and rifapentine PK in Study 22 (Weiner et al. Am J Respir Crit Care Med 2003; 167: 1341-7; Weiner M et al. Am J. Respir Crit Care Med 2004; 169; 1191-7)
  Study 23A, B & C: Evaluate rifabutin and isoniazid, efavirenz and nelfinavir interaction in persons with HIV-TB (Ongoing)

- **Diagnostic Studies**

  NAA Substudy: Study of the performance of several nucleic acid amplification methodologies in diagnosis and management of active TB (Ongoing)

- **Prevention Trials**

  Study 26: Trial of treatment of latent TB infection comparing 3-month once-weekly isoniazid + rifapentine vs. 9-month isoniazid therapy (Ongoing)

A Rapid HIV Test for Use in the Field with Oral Fluid Specimens

Following the period of large TB outbreaks among persons infected with the human immunodeficiency virus (HIV) in the late 1980s and early 1990s, CDC recommended that all TB patients and suspects be offered voluntary HIV counseling and testing to improve patient management, to prevent further HIV transmission, and to better track disease trends in this highly susceptible population.[1,2] Once highly active antiretroviral treatment (HAART) for HIV became available beginning in 1996, referral of HIV-infected persons to assess the need for and to facilitate initial contact with care and support service providers was added to HIV counseling and testing.[3] Over time, the percentage of all TB patients having known HIV status has risen from 30% in

1993 to approximately 52% in 2002.[4] Some TB programs know the HIV status of over 90% of patients, but others less than 25%. There is still room for improvement. In addition, knowledge of the HIV status of persons being assessed for latent TB infection (LTBI) can help in decision-making for TB screening and LTBI treatment and, through referrals, can link newly diagnosed HIV-infected persons to HIV care.

Many persons do not return for the results of standard HIV tests: during 2000, 30% of persons who tested HIV positive and 39% of persons who tested HIV negative did not return.[6] Rapid diagnostic HIV tests provide results within 20 minutes of specimen collection. Although slightly more expensive to purchase than standard HIV enzyme immunoassays, rapid HIV diagnostic tests increase receipt by patients of their HIV test results and have been shown to be cost-effective.[5] In a client satisfaction survey in New York state, 97% of 500 clients chose rapid HIV tests over other tests, with 24% stating that they would not have accepted HIV testing if the rapid test were not being offered.[7]

OraSure Technologies Inc. manufactures the only rapid HIV test approved by the Food and Drug Administration for use on oral fluid specimens, the OraQuick Advance HIV 1 / 2 Antibody Test. The test uses oral fluid, which is slightly different from saliva. A device to collect oral fluid is swabbed between the lips and gums and then inserted into a vial containing a developer solution. After 20 minutes, the presence of HIV antibodies is indicated by a display of two reddish-purple lines. This test can also be used on plasma or whole blood specimens. The two other FDA-approved rapid tests for nonclinical settings require whole blood specimens obtained through fingerstick or venous blood draw. These are the Uni-Gold Recombigen HIV test for HIV 1 produced by Trinity Biotech and the OraQuick Rapid HIV-1 Antibody test.[8] The OraQuick Advance test can be performed in a wider range of operating temperatures (59°F to 99°F) than other rapid tests.[9] In addition, the OraQuick Advance HIV 1 / 2 test can detect HIV 2, which is prevalent in persons from West Africa.

Reactive test results using rapid HIV testing technologies are considered preliminary positives and need to be confirmed by Western blot or immunofluorescent assay (IFA). If such confirmatory testing yields negative or indeterminate results, follow-up testing should be performed on a blood specimen collected four weeks after the initial reactive rapid HIV test result.[10]

For clients tested with a rapid HIV test, counseling should include the same types of information recommended for those tested with a standard EIA:

- Information about the HIV test, its benefits and consequences.
- Ways HIV is transmitted and how it can be prevented.
- The meaning of the test results in explicit, understandable language.
- Where to obtain further information and, if applicable, HIV prevention counseling.
- Where to obtain other services including, if applicable, treatment.

In addition, clients tested with rapid HIV tests should be

- Advised that their rapid test results will be available during the same visit.
- Informed that confirmatory testing is needed if the rapid test result is reactive.[11]

Waivers of the Clinical Laboratory Improvement Amendments of 1988 (CLIA) have been granted for the OraQuick Advance HIV 1 / 2 (on June 25, 2004), the Uni-Gold Recombigen HIV test (November 5, 2004), and the OraQuick Rapid HIV-1 Antibody test (January 31, 2003).[12] These waivers permit their use in nonclinical settings, rather than only in traditional laboratories. For instance, waived tests can be done in settings such as doctor's offices, HIV counseling and testing sites, mobile vans, health fairs, or other nonclinical settings.

Rapid tests have been particularly useful for testing pregnant women of unknown HIV status during labor and delivery to prevent mother-to-child HIV transmission. For TB programs, settings where the rapid HIV test may be particularly useful include sites for targeted TB testing of populations with high HIV prevalence such as at homeless shelters, substance abuse clinics, or correctional institutions, or even for contact investigations in home-based settings. For all waived rapid HIV testing, programs must obtain a certificate of waiver from the CLIA program, follow manufacturer's instructions for the test procedure, and maintain an adequate quality assurance program. Quality assurance guidelines can be found at http://www.cdc.gov/hiv/rapid_testing/materials/QA-Guide.htm.

—Reported by Suzanne Marks, MPH

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UPDATES FROM THE COMMUNICATIONS, EDUCATION, AND BEHAVIORAL STUDIES BRANCH

2004 Program Managers' Course

Overview of the TB Program Managers' Course

The overall purpose of the TB Program Managers' Course is to improve the planning and managerial capabilities of new TB program managers throughout the country. The course is designed for TB controllers, program managers, public health advisors, and nurse consultants with programmatic responsibilities at the state, big city, territory, or regional (within a state) level. Optimally, a course participant should have occupied a TB program management position for at least 6 months but no more than 3 years. Participants are nominated by the DTBE Program Consultant for their area.

2004 TB Program Managers' Course

The 2004 course was held in Atlanta, Georgia, October 18-22, 2004. The Communications, Education, and Behavioral Studies Branch (CEBSB) would like to thank the faculty and participants of the October 2004 TB Program Managers' Course for making the course such a success. The hard work of the faculty in preparing the materials for their sessions and the participant's hard work during the course are greatly appreciated.

This year's 5-day training was divided into 17 sessions. Each session stood alone as a block of instruction, but was sequenced to build logically on the sessions preceding it.

The course stressed practical application of planning, management, and evaluation concepts to the specific issues and concerns of TB programs. Skills essential to TB program management were presented, followed by exercises that encouraged participants to practice using the skills in the classroom setting. At the end of each session, participants were asked to address specific questions in a Planning Guide, which required them to synthesize concepts presented in the session and apply them to their own programs.

The Planning Guide was a tangible product that participants took home from the course, to serve as a record of personal course discoveries and, more importantly, as a road map for improving the effectiveness of their TB prevention and control efforts.

An initial look at the TB Program Managers' Course participant evaluations indicates the course was very well received. In the final session participants shared one thing that they wanted to add to or improve in their program as a result of taking the course. Some of the items mentioned included--

- Improve contact investigations through better prioritization of contacts

- Implement a cohort review process
- Seek opportunities to improve management skills

For the participants, the course is not entirely over. They will be mailed a 6-month follow-up questionnaire in April 2005. Once this questionnaire is completed and returned, each participant will receive a certificate of completion for the course. The next course will be held October 24-28, 2005.

—Submitted by Amera Khan, MPH, and Scott McCoy, Med Div of TB Elimination

INTERNATIONAL UPDATES

Factors Associated with Default from Multidrug-Resistant Tuberculosis Treatment, South Africa, 1999-2001

In the past decade, South Africa has experienced a rapid escalation of TB incidence, with new cases rising from less than 100 per 100,000 persons in 1990 to 558 per 100,000 in 2003. In the 2002 Report on Global TB Control, the World Health Organization (WHO) ranked South Africa third in the world in terms of reported TB incidence for 1999 and seventh in terms of absolute number of persons with active TB.[1] Health services are currently burdened by more than 200,000 new TB patients per year, of whom 60% are estimated to be infected with HIV.[2]

At present, the estimated proportion of TB cases in South Africa identified as multidrug-resistant TB (MDR TB) ranges from 1% to 2% among new cases and 4% to 14% among retreatment cases, depending on the province. Treatment default has been identified as a significant problem in these patients. Failure to adhere to MDR TB therapy may result in primary transmission of MDR TB in the community, amplify resistance to second-line drugs, and increase the chance of failure in subsequent treatment attempts.[3]

CDC technical assistance was requested to assist in conducting an evaluation of factors associated with treatment default among patients receiving treatment for MDR TB. This case-control investigation to identify patient-level and provider-level factors for default to MDR TB treatment was conducted in 2003 and 2004. These results will assist the South Africa National TB Control Program in strengthening existing strategies for improving adherence among all TB patients and introduce new strategies to maintain adherence among the growing pool of MDR TB patients being treated under the national standardized MDR TB treatment guidelines.

We conducted an unmatched, questionnaire-based, case-control study among adult persons aged 18 years and older diagnosed with MDR TB between October 1, 1999, and September 30, 2001, and for whom MDR TB treatment was initiated. Data was collected from sites in five provinces. We selected all patients from MDR TB treatment register lists generated by each province's MDR TB referral hospital. We defined cases as MDR TB patients 18 years or older who initiated standardized MDR TB therapy but subsequently defaulted. We defined controls as MDR TB patients who initiated MDR TB treatment and were considered to have completed a full treatment course (either cure or completion or failure). Owing to logistical limitations, we restricted our

interviewers to look for patients living within 200 kilometers of the hospital.

A questionnaire was developed in English and translated into the other common South African languages (Xhosa, Zulu, Tswana, and Afrikaans) and back-translated into English to evaluate the quality of translation. This study was conducted using a face-to-face, administered questionnaire. The questionnaire consisted of a mixture of open-ended, multiple choice, and yes/no questions. Questions were asked to establish demographic and social characteristics, health service experience, clinical characteristics, TB/MDR TB knowledge, and self-reported reasons for defaulting (if applicable).

Our study provided multiple layers of information about patient, provider, and health system-level factors that may influence patients' adherence to MDR TB treatment. First, we discovered that 13% of treatment defaulters (our cases) and 10% of treatment completers were improperly classified in the MDR TB registers we examined. The proper recording of treatment outcome is of enormous importance in a country like South Africa, with an emerging problem of MDR TB in the midst of a large human immunodeficiency virus (HIV) epidemic. Misclassification bias, even on the order of 10% seen here, can markedly skew "good outcomes" (treatment success of 70%-75%) to "modest" outcomes (treatment success of 60%-65%).

Second, not surprisingly, our investigators uncovered a significant death rate among defaulters and those completing MDR TB treatment in our sampling cohort. More than one in four patients who were classified as defaulters were in fact found to have died after the last contact with their MDR TB clinic. Twenty percent of those for whom we found death dates had died within 2 months after stopping treatment, and were thus "true deaths."

We were also unable to contact another one third of treatment defaulters, likely due to internal migration or death. Therefore the "true death rate" among those undergoing treatment for MDR TB may not be known, but it is likely higher than the 25% reported in recent MDR TB outcome studies in South Africa.

We identified four major areas associated with treatment default in the patients we interviewed. The most significant factors we found associated with treatment default were related to the quality of the patient-provider relationship. Our multivariate model showed that defaulters were nearly ten times more likely to report dissatisfaction with health care worker attitudes. They were also ten times more likely to report missing treatment due to health care worker attitudes. Though it is possible that a small proportion of defaulters went into treatment with preconceived negative feelings about the health care services, this bias is unlikely to account for such an overwhelming disparity of opinion.

Lack of support from family and friends during treatment also appears to be crucial. Our multivariate model showed that cases were twice as likely to report feeling ashamed about having MDR TB. Twice as many cases reported a lack of social support from family or friends during treatment. This is often reflective of the stigma they feel is attached to TB, the amount of support they feel in

disclosing their disease to others, and of being seen as a TB patient by friends and family.

Importantly, our model showed that the use of illegal substances during treatment, such as marijuana or mandrax, was more than ten times more likely to be reported by cases than controls. The use of alcohol on an occasional or regular basis was also more commonly reported by cases. Cases were four times more likely to report having spent time in prison during MDR TB treatment than controls.

When cases were asked directly why they defaulted treatment, the most common response was that side effects were too common. It is possible that patients' discomfort in having MDR TB, the associated stigma of having TB, and a poor experience in the health care setting may translate into a lowered tolerance to side effects from medication. The outward expression of these difficulties in treatment could be perceived by patients to be medication side effects.

Based on our findings, we are able to recommend that the National TB Control Programme consider strengthening the training, supervision, and support of health care providers of MDR TB patients to avoid burnout and overwork. We also feel it is necessary for the programme to provide continuing education for health professionals on the importance of the patient-provider relationship, and the importance of the health care provider attitude. Given that support from family and friends is a crucial component of completing treatment, the programme should consider supporting patients' treatment and care package with family support sessions, treatment counseling, and substance abuse counseling.

—Submitted by Timothy Holtz, MD, MPH
Div of TB Elimination

References
1. World Health Organization. Global Tuberculosis Control: Surveillance, Planning, Financing. WHO Report 2003. Geneva, Switzerland: World Health Organization, 2003; report no. WHO/CDS/TB/2003.316.

2. World Health Organization. Tuberculosis control in South Africa: joint programme review 1996. Geneva: World Health Organization, 1996. WHO/TB/96.208.

3. World Health Organization. Anti-tuberculosis drug resistance in the world. The WHO/IUATLD global project on anti-tuberculosis drug resistance surveillance. Geneva, World Health Organization, 1997 (WHO/CDS/TB/1997.229).

UPDATES FROM THE SUrVEILLANCE, EPIDEMIOLOGY, AND OUTBREAK INVESTIGATIONS BRANCH

Heard of Any Outbreaks? DTBE's Outbreak Evaluation Unit (OEU) in Action

At one time or another, public health personnel at the local, state, and national levels investigate TB outbreaks. These outbreaks are natural opportunities for studying a classic "epidemiologic triad": the interaction of the environment, the host, and the pathogen *Mycobacterium tuberculosis.* This article briefly describes how DTBE gathers information about outbreaks and how DTBE can be of assistance in responding to them.

The Outbreak Evaluation Unit (OEU): The OEU is comprised of members from the Outbreak Investigations Team from the Surveillance, Epidemiology, and Outbreak Investigations Branch (SEOIB), the Field Services and Evaluation Branch (FSEB), the Communications, Education, and Behavioral Studies Branch (CEBSB), the Mycobacteriology Laboratory Branch (MLB), and the DTBE Office of the Director (OD). This group combines the functions and expertise of the various branches, which enables DTBE to evaluate reports of recent transmission of *M. tuberculosis* thoroughly. These reports are assembled and shared by the program consultants from FSEB. The OEU meets each Tuesday to receive new reports, to monitor progress on pending reports, and to recommend how DTBE can participate with state and local program officials in the investigation and control of possible outbreaks. As guided by the OEU, DTBE offers various types of responses that are described below.

Types of Responses: One or a combination of these responses can be offered to the local and state TB control officials:

1. Telephone consultation. During a telephone consultation, a team consisting of members from SEOIB, FSEB, CEBSB, and MLB (if needed) consult with the state or local personnel about the investigation and control of an outbreak. The consultation is interactive and often requires a series of conference calls as results from the investigation become available. The FSEB program consultant for the jurisdiction coordinates the scheduling on behalf of DTBE.
2. Technical on-site assistance. Aside from the standard epi-aid response, DTBE can designate a team that is specially composed to meet a request from jurisdictional authorities. This approach suits situations that do not require the intensive response that is characteristic of epi-aids.
3. On-site outbreak investigation (epi-aid). An epi-aid is the traditional CDC response to a request for on-site assistance. For an epi-aid related to TB, an Epidemic Intelligence Service (EIS) officer is invited by state and local officials to join an outbreak investigation team. The epi-aid provides a prompt, standard CDC response to state and local needs for epidemiologic assistance, and it affords a unique training opportunity for the assigned officer to develop epidemiologic skills.

   An epi-aid for TB begins when the state epidemiologist invites CDC participation by sending a request to OD, DTBE. Epi-aids are collaborative by design---the CDC personnel work closely with the state and the local health officials during the outbreak investigation.

A typical epi-aid for a TB outbreak investigation offers the following:

- On-site assistance from DTBE for 2-3 weeks, during which a DTBE epi-aid team comprised of the EIS officer, a DTBE staff epidemiologist, frequently a TB public health advisor, and on some occasions an epidemiology elective student from a health-professions college to work collaboratively with the state or the local outbreak-response team.

- An entrance meeting with the jurisdictional public health officials. The purpose is to review the objectives of the investigation, to determine the person in charge in the jurisdiction for potential coverage from news media, to create a preliminary plan for the investigation, and to schedule periodic update meetings.
- An exit interview with the jurisdictional public health officials. The EIS officer, along with the epi-aid team and the collaborating state or local outbreak-response team, present the preliminary findings and provide preliminary recommendations for control of the outbreak and any further investigations that might be needed.
- Temporary duty assignments for program assistance. If the investigation team determines that a DTBE public health advisor would facilitate the programmatic response to an outbreak, the FSEB program consultant for the jurisdiction arranges this.
- Outbreak response emergency supplemental funds. Limited emergency supplemental funds are allocated by Congress through DTBE for tuberculosis outbreak abatement. If an outbreak response requires new resources (e.g., extra personnel to be hired by contract), the FSEB program consultant for the jurisdiction reviews the proposal for how additional funds could be used.
- A final report (the trip report). This describes the methods and results of the investigation and the final recommendations from CDC. The report is sent to the jurisdictional public health officials approximately 2 months after an investigation. Sometimes they take longer because of ongoing data collection and new findings.

The detection of tuberculosis outbreaks plays a crucial role in the elimination of this disease. Suspected episodes of transmission of *M. tuberculosis* should be discussed with your program consultant.

—Reported by Kashef Ijaz, MD
and John A. Jereb, MD
Div of TB Elimination

Tuberculosis Epidemiologic Studies Consortium (TBESC) Update

The Tuberculosis Epidemiologic Studies Consortium (TBESC) conducts programmatically relevant epidemiologic, behavioral, economic, laboratory, and operational research related to TB prevention and control. It also seeks to develop local health departments' capacity for independent research.

Table 1. TBESC Research

Task Order No.	Title	Principal Investigator	Co-principal investigator	# of participating sites	Study duration (yrs)

1	TBES Consortium: Core requirements			22	10
2	Prospective evaluation of immunogenetic and immunologic markers for susceptibility to tuberculosis (TB) infection and progression from M. Tuberculosis infection to active TB	Mary Reichler	Tim Sterling	9	4
3	Zero tolerance for pediatric TB	Mark Lobato		3	2
4	Models for incorporating HIV counseling, testing, and referral into tuberculosis contact investigations	Suzanne Marks		1	2
5	Prevalence of LTBI among high risk populations in the United States	Rachel Albalak		3	2
6	Regional capacity-building in low-incidence areas	Paul Tribble		1	5
7	Use of network analysis methods to characterize M. tuberculosis transmission patterns among women and other high-risk populations	Peter McElroy	Maureen Wilce	3	1
8	A national genotyping registry for molecular epidemiologic analysis of multi-drug resistant M. tuberculosis	Kashef Ijaz	Jenny Flood	17	4
9	Enhanced surveillance to identify missed opportunities for TB prevention in foreign-born population in the United States and Canada	Dolly Katz, Randall Reves, Amy Davidow		22	4
10	New Model for Assessing TB Surveillance and Action Performance and Cost	Scott McNabb		2	3
11	Addressing TB Among African Americans in the Southeast: Identifying and Overcoming Barriers to Treatment Adherence for LTBI and TB Disease	Nick DeLuca		1	2
12	Assessing the TB Knowledge, Attitudes, Beliefs, and Practices Among Private Providers Serving Foreign-born Populations at Risk for TB	Nick DeLuca		1	2
13	Factors associated with acceptance of, adherence to and toxicity from treatment for Latent Tuberculosis Infection (TLTBI) and pilot study of TLTBI effectiveness: Phase I	Bob Horsburgh	Robin Shrestha-Kuwahara, Stefan Goldberg	20	4
14	Culturally Appropriate TB Educational Materials for Leaders and Staff of Hispanic Service Organizations	Nick DeLuca	Scott McCoy	1	2
15	Enhancing TB programs' capacity for self-evaluation: testing new tools and developing an evaluation toolkit	Mark Lobato, Maureen Wilce		2-3	1
16Alt*	African Refugee Women's Health Improvement Project	Sue Etkind, Jennifer Cochran		1	2
17Alt**	Evaluation of the TK Medium: A new rapid solid culture system for tuberculosis	Rick O'Brien	Rachel Albalak, Tom Shinnick	3	6 months

*Local initiative not reviewed and monitored by TBESC Research Committee
** Funded by outside source

Since its establishment in 2001, the TBESC has launched 16 studies on a wide range of topics (see Table 1). Table 2 shows the status of each study.

Table 2. TBESC Research Progress

Status	Task Order #*
Data collection completed	3,4,6,7
Data collection ongoing	2, 5, 9, 10,12, 13, 14
Undergoing IRB review (CDC and/or local)	8, 11
Protocol development	15, 16, 17

*Refers to the numbers in Table 1.

6th Semi-Annual TBESC Meeting

The 6th Semi-Annual TBESC meeting was convened November 18 -19, 2004, at the Corporate Square Office Park in Atlanta, Georgia. Over 100 persons from TBESC sites, affiliates, and CDC attended the 2-day meeting. Goals of the meeting were to update participants on the progress of TBESC research activities, provide sessions on quality assurance measures, discuss methods for garnering support from community partners, and enhance participants' budgetary, fiscal, and research skills.

CDC staff, TBESC site members, and guest speakers gave presentations on a number of topics, which included:

- Using the CDC Foundation to identify outside funding sources
- Work plans for the Diagnostics Workgroup
- Principal Investigator and IRB Responsibilities
- Committee Updates
- Research Updates

Upcoming Activities

The 7th Semi-Annual TBESC Meeting will be held May 4 – 5 in Atlanta, GA. Additional information regarding TBESC sites, personnel, and research activities can be found on the TBESC website, http://www.cdc.gov/nchstp/tb/TBESC/TOC.htm

—Submitted by Robert E. Bailey II, MPH
Div of TB Elimination

TRAINING AND EDUCATION NEWS AND MATERIALS

The Tuberculosis and Respiratory Disease Institute

The TB Control Programs of North Carolina and South Carolina, in conjunction with the American Lung Association of NC, annually sponsor an educational meeting, "The Tuberculosis and Respiratory Disease Institute," which has been held for the last 55 years in Black Mountain, NC. The meeting dates are July 22- 24, 2005. The meeting is attended by nurses, physicians, mid-level providers, health educators, social workers, and pharmacists involved in the education and treatment of persons with tuberculosis. Contact hours are awarded. Participants from other states are welcome. Lodging and meals are available on-site at the YMCA Blue Ridge Assembly. Brochures will be available mid-April. For additional information please contact Ashley Ewing, Health Educator, NC TB Control Program, at tel. (919) 733-0391 or e-mail ashley.ewing@ncmail.net, or Elizabeth Zeringue, Nurse Consultant, at tel. (919) 663-4600 or e-mail elizabeth.zeringue@ncmail.net.

—Submitted by Elizabeth Zeringue
Chairman, TB/RD Institute Planning Committee

NEW CDC PUBLICATIONS

CDC, DTBE. Interactive Core Curriculum on Tuberculosis: What the Clinician Should Know. Atlanta, GA: CDC; 2004. CD-ROM. Can be ordered through DTBE's online ordering system (go to www.cdc.gov/tb and click on Order Publications) or through the CDC Voice and Fax Information System (call the toll-free number 1-888-232-3228, then select 2, 5, 1, 2, 2, and request #99-8049). It is also available as a Web-based course at www.cdc.gov/nchstp/tb/webcourses/corecurr/index.htm

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Maus CE, Plikaytis BB, and Shinnick TM. Mutation of *tlyA* confers capreomycin resistance in *Mycobacterium tuberculosis. Antimicrob Agents Chemother* 2005; 49(2): 571-577.

PERSONNEL NOTES

Tina Albrecht, MPH, a public health advisor (PHA) with the Field Services Branch, has left DTBE and accepted a position with the California Department of Health Services Vector-Borne Disease Section. Tina was assigned to Berkeley, CA, where she has been working at the state TB Control Branch as the Outbreak Response Coordinator. In addition to providing technical assistance for outbreaks and extended contact investigations, her responsibilities also included implementing an exposure control plan, helping to develop a formalized mechanism for evaluation of the outbreak team, and tracking costs associated with responding to outbreaks. Prior to her assignment to California, Tina was a PHA trainee in Ft. Lauderdale, FL, where she provided case management and DOT/DOPT services, conducted contact investigations, and assisted with data collection and analysis for the production of ARPEs. Before joining CDC, she was a biological science technician with the U.S. Department of Agriculture in New Orleans, Louisiana. She earned a bachelors degree in biology from California State University, Chico, California, in 1994 and a masters degree in public health in tropical medicine from Tulane University in 1999. She also served with the Peace Corps in Ghana from 1995 to 1997.

Idalia Gonzalez MD, MPH, left her position as a medical epidemiologist with DTBE to pursue a career as a

clinician in pediatrics. Dr. Gonzalez joined CDC as an Epidemic Intelligence Services Officer (EISO) in July 1999 in the National Immunization Program. As an EISO, she conducted epidemiological and operational research in determining better ways to control vaccine preventable diseases. After completing her training as an EISO, she joined the preventive medicine residency program at CDC. Dr. Gonzalez joined the Outbreak Investigation Team in the Surveillance, Epidemiology and Outbreak Investigations Branch in the Division of Tuberculosis Elimination (DTBE) in July 2002. During her work in DTBE, she has been instrumental in working on various TB outbreak investigations and providing training and mentorship to EISOs in the branch. Dr. Gonzalez is board certified in pediatrics and preventive medicine. She will be missed by everyone in the division. We wish her well in her new career.

Chris Kissler joins SEOIB as the new project manager (replacing Viva Combs) for the TBESC. Chris comes to us from the Florida Department of Health where he was the Director of Field Services for the Bureau of TB and Refugee Health. He has been working in public health for 10 years with a focus on the prevention and control of HIV/AIDS, STD, and TB at both the local and state levels.

Mark Lobato, MD, has left Atlanta and is now located in Connecticut as a regional medical Officer. After finishing his pediatric training at the University of California, Mark joined the Public Health Service as an Epidemic Intelligence Service Officer. As an EISO, Mark provided evidence that a new virus does not cause idiopathic CD4 T-lymphocytopenia. He also studied the use of universal precautions in the homes of persons with hemophilia. In 1994, he was a preventive medicine resident with the California Department of Health Services where he characterized missed opportunities to prevent TB. He left the Commissioned Corps to complete an Infectious Diseases fellowship where he defined a new risk factor for TB infection and demonstrated the usefulness of outpatient gastric aspirates for diagnosis of TB in children. Upon his return to CDC and the Commissioned Corps, Mark joined the Division of HIV/AIDS as a medical epidemiologist assessing HIV-related opportunistic illnesses and participating in the implementation of national HIV surveillance. The following year, he joined DTBE as a medical officer, and was innovative in several areas of TB prevention and control. He served as the team leader for a 35-person Evaluation Work Group, the representative to the CDC/ ICE-DHS/ DIHS policy work group, the lead for a 51-person TB in Corrections Working Group, the CDC representative to a team for the Surgeon General's "Call to action on correctional and community health care," and a member of an advisory group to overhaul quarantine stations. He evaluated TB control in 20 large urban jails and designed a study of missed opportunities to prevent TB and LTBI in young children, conducted a multisite study of treatment for latent TB, and produced recommendations to improve TB control on the U.S.-Mexico border. Presently, Mark is embarking on a new mission as New England region medical officer where he is learning the best practices for the elimination of TB in low-incidence areas. He is located in Hartford, Connecticut. Mark started this position on December 13, 2004.

Mark Miner was selected for the Senior Public Health Advisor (PHA) position for the Maryland State Department of Health and Mental Hygiene (DHMH) TB Program. Since August 2002, Mark has been working as the Public Health Advisor with the Baltimore City TB Program in the role of Program Manager. His duties included managing the local TB budget, writing the co-operative agreements and contracts, developing local TB policy, directing personnel activities, overseeing surveillance issues and monitoring the TB clinic patient care and contact investigation issues. Mark previously worked as a Public Health Representative with the New York State Department of Health TB Bureau from January 1993 to August 2002. His duties included monitoring TB cases and suspects for a 14-county region in Central New York. This involved field visits to various county health departments and state correctional facilities where he reviewed completion of morbidity reports, consulted with prison and county clinical and administrative staff, conducted contact investigations and monitored targeted testing activities. Prior to working with the New York State Department of Health, Mark worked as a Public Health Sanitarian for the health departments in Oneida and Madison counties in Central New York. Mark also taught health classes to middle school and high school students at the Canastota Central School District in New York. Mark began his DHMH assignment on February 7, 2005.

Carol J. Pozsik, RN, MPH, former TB Controller of South Carolina, has accepted the position of Executive Director of the National TB Controllers Association, effective January 3, 2005. She has been the TB Controller for South Carolina for the past 23 years and was the former Secretary, then President, of the Association. She also was appointed to serve on the first Advisory Council for the Elimination of TB (ACET) and several times subsequently as a consultant to the Council. She is well known to CDC TB staff as being an advocate for TB programs and has worked closely over the years on many CDC committees and projects.

Carol J. Pozsik, RN, MPH
Executive Director
National Tuberculosis Controllers Association
2452 Spring Road, SE
Smyrna, GA 30080-3828
678-503-0503 (local calls)
877-503-0806 (toll free calls)
678-503-0805 (FAX)
877-503-0805 (toll free FAX)

Valerie Robison, DDS, MPH, PhD, has been selected as the new Chief of the Surveillance Team at DTBE, and will join DTBE on April 18. She received a DDS degree from Johns Hopkins University in 1983, a PhD from the University of North Carolina in 1979, and an MPH in Health Services Administration from the University of North Carolina in 1995. Since moving to Atlanta and joining CDC in 1999, Valerie has been working at NCCDPHP; with the Division of Reproductive Health in HIV/AIDS research and most recently with Division of Oral Health in oral health surveillance. Valerie brings to her new job a wide range of national and international experiences in TB, surveillance, and public health. From 1996 to 1999, she directed field activities in northern Thailand for the HIV/AIDS collaboration between Chiang Mai University and Johns Hopkins

University. At that time she was on the faculty at the Department of Epidemiology, Division of Infectious Diseases, Johns Hopkins School of Hygiene and Public Health. From 1995 to 1996, she worked in TB epidemiology at the University of Texas Health Center in Tyler, Texas. She met her future husband, Dr. Peter Cegielski (DTBE, International Research and Programs Branch), in 1989 in Tanzania when she sold him a leaky windsurfer -- he, and their relationship, survived. She lived in Dar es Salaam, Tanzania, from 1983 to 1990 and worked at the Ministry of Health. She worked as a dentist in North Carolina and then went to Kathmandu, Nepal (1980-1982) to work in public health dentistry. She and Peter Cegielski have two children, ages 12 and 8, and they enjoy travel, water sports, music, and their Golden Retrievers.

Harry A. Stern is retiring on April 2, 2005, after 35 years of service to the U.S. government. Harry served in the U.S. Army from 1967 to 1969, including a tour of duty in Southeast Asia. In 1972, he received a bachelor of arts degree from Long Island University, Brooklyn, New York. In 1972 Harry joined CDC in Atlanta, Georgia, as a Public Health Advisor (PHA) for the Venereal Disease Control Program and was assigned to the New York City Department of Health. He had additional state and city assignments with that program (now the Division of STD Prevention) in Miami, Florida; San Francisco, California; Philadelphia, Pennsylvania; Ft. Lauderdale, Florida; and Baltimore, Maryland. His career in TB control began in 1987 when he transferred from his STD assignment in Baltimore, Maryland, to an assignment with DTBE as the Baltimore City TB Program Coordinator. In this position, Harry was instrumental in initiating TB and HIV prevention activities in drug treatment centers, jails, and health care centers. In 1988, he transferred to DTBE headquarters in Atlanta. From 1988 to 1994, Harry served as the Associate Director for TB/HIV Activities for the division. During this time, he played a key role in the development of a plan to incorporate TB, HIV, and STD screening activities in methadone maintenance clinics and correctional facilities. He was also the lead consultant for many of the Division's TB/HIV cooperative agreements with state and local health departments. In addition, he participated on several workgroups addressing the issues of multidrug-resistant TB and nosocomial transmission of TB. In June 1991 Harry received a CDC Unit Commendation for his contributions in addressing the nosocomial transmission of TB from HIV/AIDS patients. In June 1993 he received the PHS Special Recognition Award for his part in an outstanding CDC team effort in addressing the threat of MDR TB. From 1994 to 2000, Harry served as the Deputy Associate Director for International Activities in the division. In this position, he provided management and programmatic oversight for DTBE's international activities, including coordination with CDC's Office of Global Health, the International Union Against TB and Lung Disease, the World Health Organization (WHO), and the U.S. Agency for International Development (USAID). He played a principal role in establishing BOTUSA, the research site in Botswana, Africa. Harry also administered international agreements between CDC, USAID, WHO, and the Ministries of Health of Russia, Latvia, Estonia, the Philippines, and Mexico.

While in this assignment he developed the first TB component of the International Experience and Technical Assistance Program (IETA). Through his involvement with IETA, the division selected and assigned several PHAs for international assignments to Botswana, South Africa, Zimbabwe, and Russia. Since 2000, Harry has served as the TB Program Operations Manager in Miami-Dade County, Florida. He has been involved in all aspects of TB control and prevention, including policy, surveillance, program evaluation, strategic planning, personnel, and fiscal activities. In November 2004, Harry received a Special Recognition Award from the Bureau of Tuberculosis and Refugee Health, Florida Department of Health, for his contributions to improving TB control efforts in Miami (Dade County). Harry plans to temporarily retire to Melbourne Beach, Florida, where he enjoys traveling, kayaking, fishing, and riding his bike.

Todd Wilson, MS, CHES, is leaving DTBE to work for CDC/NCID/Division of Global Migration and Quarantine (DGMQ). His last day with DTBE is March 25. Todd came to DTBE's Surveillance, Epidemiology, and Outbreak Investigations Branch (SEOIB) in late 2002 and assumed most of the duties of Glory Kelly, who retired at the end of 2002. He oversaw the entire process of cleaning and closing the surveillance system data set, formatting the annual surveillance report, proofreading the complex tables, and printing and distributing the report. The annual report Todd produced in 2003, the 50-year anniversary edition, is a remarkable tribute to his hard work. Todd also coordinated all responses to requests for surveillance data. To improve how we provide surveillance data summaries, he conceived of and instituted an on-line surveillance data request system this year. This new system allows us to track these requests and evaluate how quickly and accurately we respond. The success of the new system is already evident by the substantial increase in requests that have been submitted. Todd has also been the surveillance team's expert in our effort to make an important transition from our current surveillance software system to the new CDC-wide NEDSS platform. This required him to master a new technical field and work with others with very different backgrounds; he did both with great skill. In his new position as the Officer in Charge of the El Paso, Texas, Quarantine Station, Todd will manage the day-to-day affairs of the station and supervise two PHAs and an administrative staff person. He will receive reports of ill passengers arriving via the international terminal at El Paso Airport and conduct case finding and contact investigations with other passengers if needed. He will perform the same functions with the major bus terminals in El Paso. As the agency with statutory authority for preventing persons with certain illnesses from entering the Unites States, his group will work with local hospitals to provide isolation and quarantine facilities for those persons (infectious TB patients, for example). The quarantine station will have a Medical Officer on staff to diagnose and direct these activities. He will also work closely with DGMQ to help identify established epidemiologic and geographic disease links for persons who immigrate to the United States through El Paso. Eventually, the El Paso Quarantine Station will be the headquarters for these imonitoring and

epi activities for a large section of the U.S.-Mexico border.

CALENDAR OF EVENTS

April 1, 2005
Update on Pulmonary and Infectious Diseases
El Paso, Texas
The Center for Pulmonary and Infectious Disease Control and the American Lung Association of Texas
For information: Robin Anderson, RN, tel: (512) 467-6753 or Web site: http://www.texaslung.org/programs/professionalconferences/index.htm

April 2-7, 2005
Tuberculosis: Integrating Host and Pathogen Biology
Keystone Symposia on Infectious Disease
Whistler, British Columbia, CANADA
Web site:
http://www.keystonesymposia.org/Meetings/ViewMeetings.cfm?MeetingID=742

April 11-14, 2005
54th Annual EIS Conference
Atlanta, GA
Epidemic Intelligence Service, CDC
Website for information:
http://www.cdc.gov/eis/conference/conference.htm.

April 20-23, 2005
The Denver TB Course
Denver, CO
National Jewish Medical and Research Center
Web site: http://www.njc.org/tbcourse.html

April 22, 2005
Update on Pulmonary and Infectious Diseases
Tyler, Texas
The Center for Pulmonary and Infectious Disease Control and the American Lung Association of Texas
For information: Robin Anderson, RN, tel: (512) 467-6753 or Web site:
http://www.texaslung.org/programs/professionalconferences/index.htm

May 11, 2005
Tuberculosis Case Management Workshop
Emeryville, CA
Francis J. Curry National Tuberculosis Center
Website for more informationL
www.nationaltbcenter.edu/training/tb_case_management_workshop.cfm

May 11-13, 2005
First Line Supervisor's Course
Newark, New Jersey
New Jersey Medical School National Tuberculosis Center
The Northeastern Regional Training and Medical Consultation Center at UMDNJ will offer this interactive 3-day course, which covers the basics of TB control leadership, performance evaluations, communication skills, and education and training. Format includes lectures, group discussion, group exercises and role-playing. Additional information and course application is available at:
http://www.umdnj.edu/ntbcweb/et_frame.html
Please contact Lauren Moschetta at moschelb@umdnj.edu or (973)-972-1261 for any additional information.

May 12-13, 2005
CTCA Conference, Preventing TB Transmission in the 21st Century: New Tools
Emeryville, CA
California Tuberculosis Controllers Association (CTCA)
Website for information: www.ctca.org

May 20-25, 2005
The 2005 ATS International Conference
San Diego, CA
American Thoracic Society
Website for information:
http://www.thoracic.org:8080/ic/ic2005/welcomeletter.jsp

May 22, 2005
TB Control Strategies Poster Session, ATS 2005 International Conference
San Diego, California, USA
Sponsor: CDC
This 2-hour public health poster forum will focus on innovative techniques that are helping to meet the challenges of TB prevention, control, and elimination. Abstracts for poster presentations on significant or innovative aspects of TB control programs are due by February 15, 2005. The number of accepted posters may have to be limited because of space and time constraints. Poster abstracts should be submitted electronically. For instructions for abstract submission, related forms, and other questions, please contact Dr. Zachary Taylor at ztaylor@cdc.gov or 404-639-5337.

June 28-30, 2005
National TB Controllers Workshop
Atlanta, GA
National TB Controllers Association, National TB Nurse Consultant Coalition, and CDC
The theme of the Workshop is *"Can You Hear Me Now? Let's Talk TB."* For further information, please contact Phillip Talboy at (404) 639-8120 or Carol Pozsik at (678) 503-0503.

July 22-24, 2005
Tuberculosis and Respiratory Disease Institute
Black Mountain, NC
TB Control Programs of NC and SC
American Lung Association of North Carolina
For more information, contact
Ashley Ewing at tel: (919) 733-0391 or e-mail: Ashley.ewing@ncmail.net or
Elizabeth Zeringue at tel: (919) 663-4600 or e-mail: Elizabeth.zeringue@ncmail.net

August 17-19, 2005
TB Education and Training Network (TB ETN)
5th Annual Conference
Atlanta, GA
TB Education and Training Network
Website for information:
http://www.cdc.gov/nchstp/tb/TBETN/default.htm

September 15-16, 2005
The TB Cohort Review Process
The Charles P. Felton National Tuberculosis Center at Harlem Hospital
New York City
Tel: (212) 939-8254
http://www.harlemtbcenter.org/
To apply, please access the course information via the website above and submit the application on the brochure.